Pragmatism and Climate Policy

EES 3310/5310

Global Climate Change

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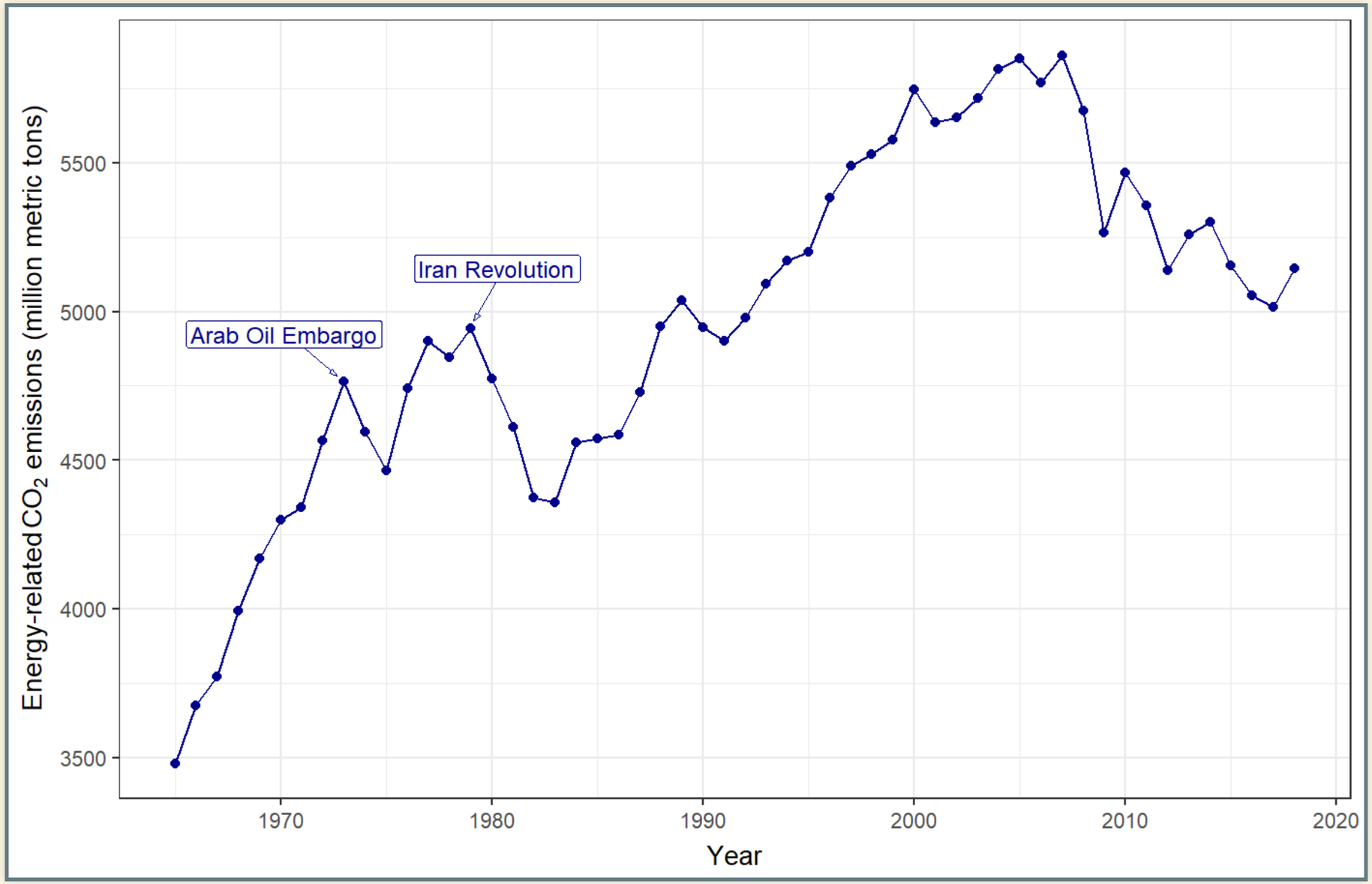
Challenges of Decarbonization

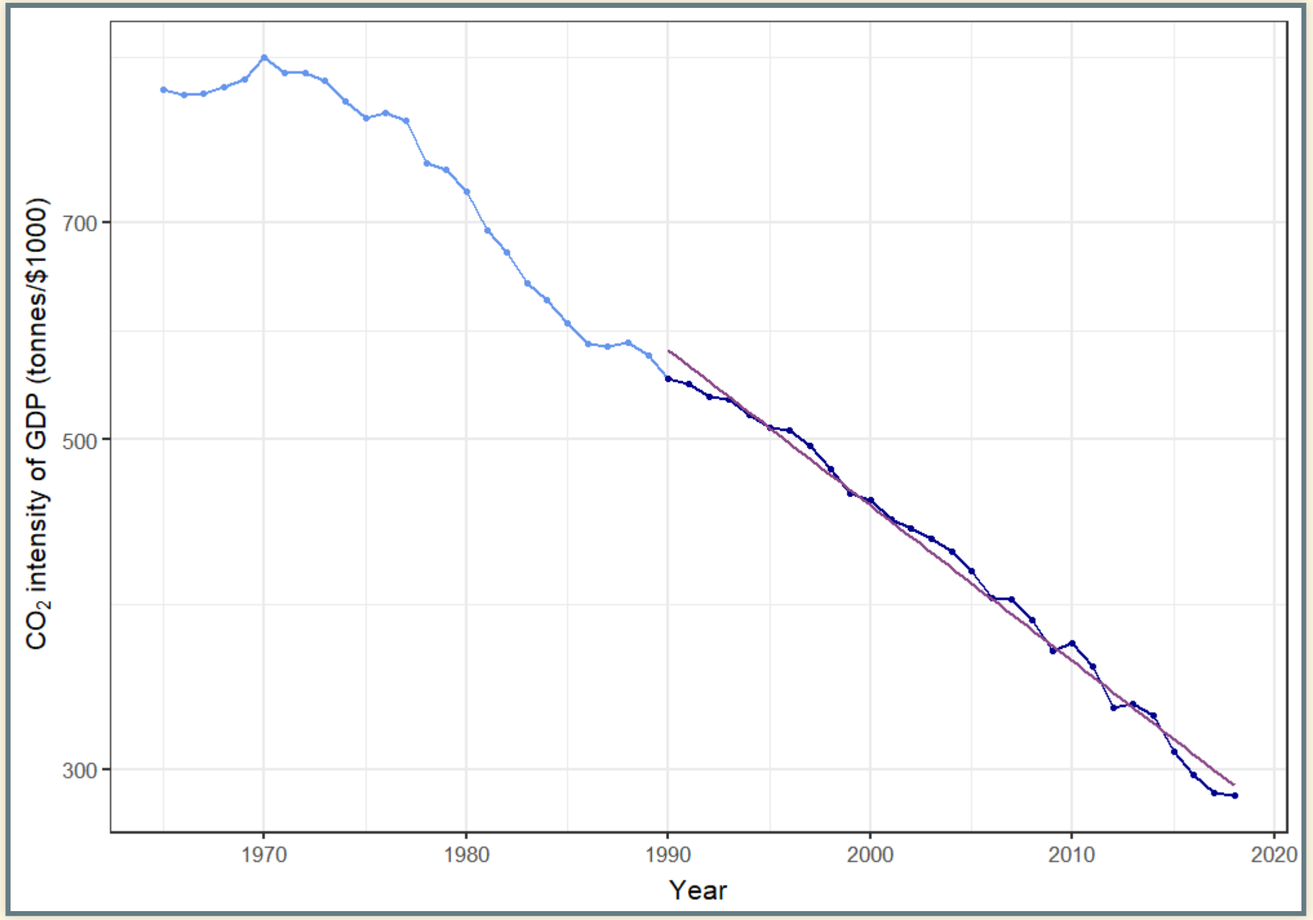
Challenges of Decarbonization

- How hard will it be to reduce CO_2 emissions?
  - Nordhaus:
    - What technology can replace fossil fuels?
    - What policies can stimulate innovation, investment, production, purchase of clean technology?
  - Pielke:
    - The biggest challenge is cost: $RE < C$
    - Make clean technology cheaper than fossil fuels and the problem is solved.

Perspective: US CO_2 Emissions

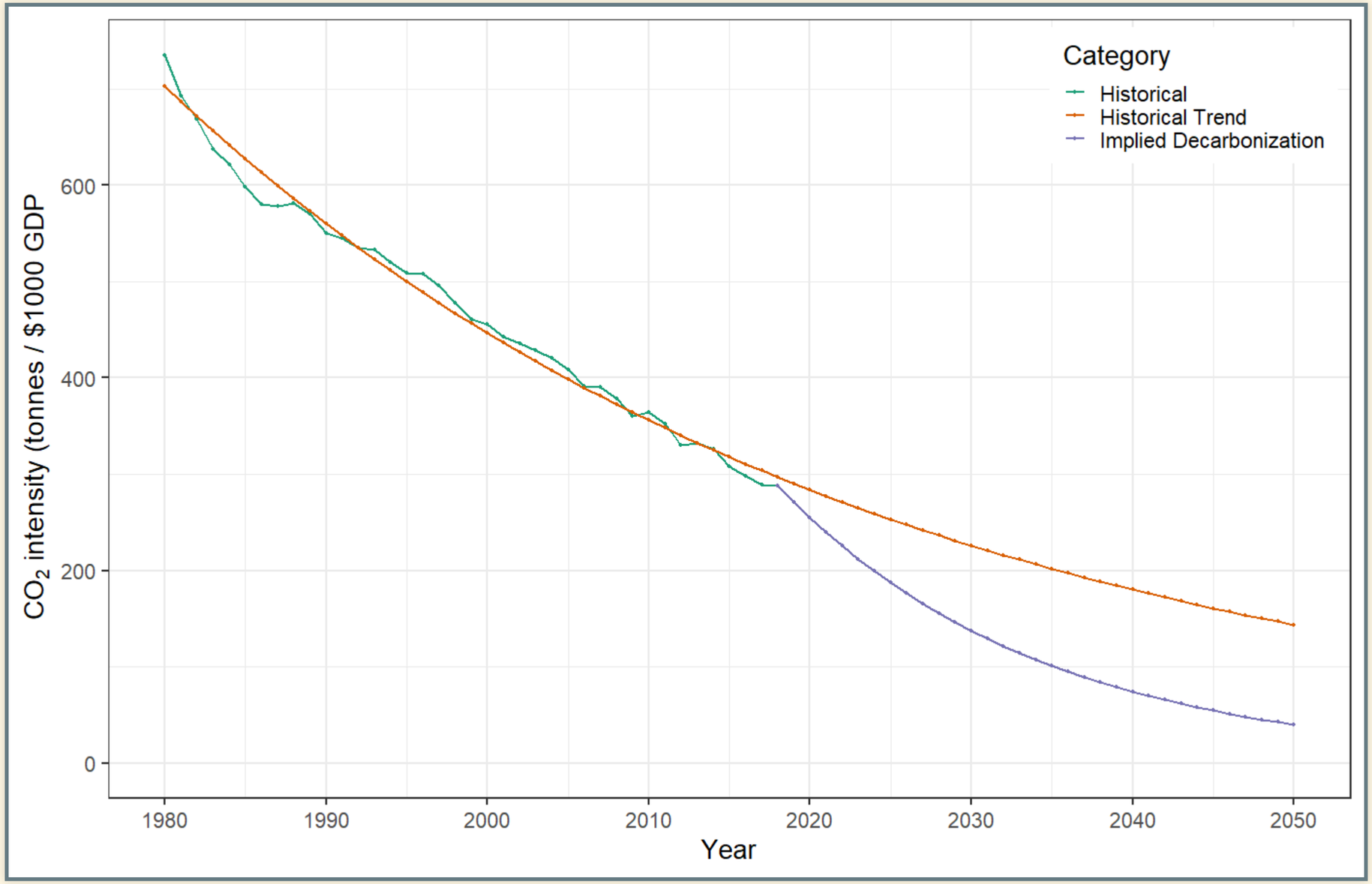


Rate of Decarbonization

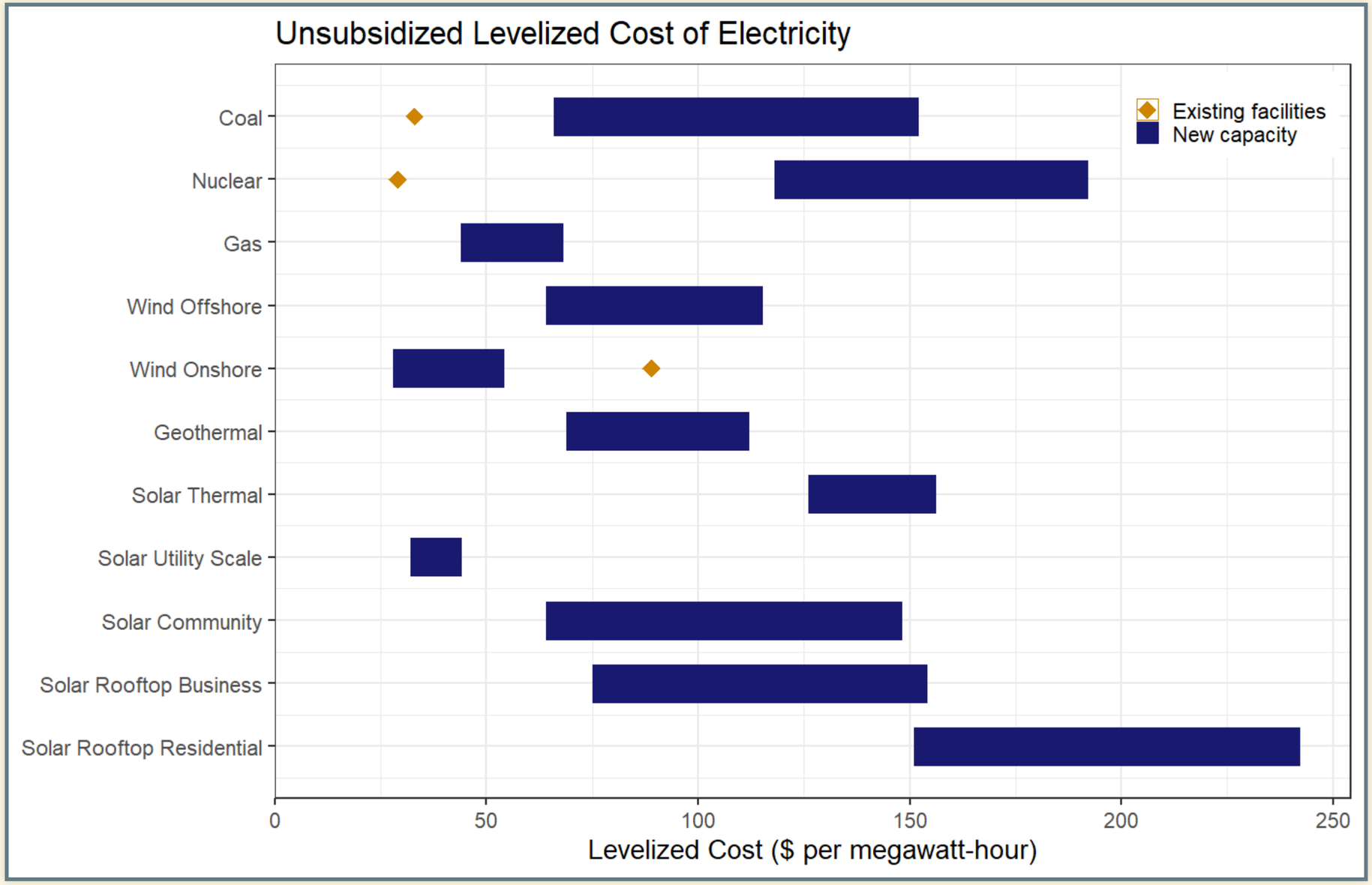


- 2009 policy goal: US emissions 83% less than 2005 by 2050
- *ef* must drop by 6.2% per year
- Actual rate has been about 2.3% per > year

Implied Decarbonization



Cost of Decarbonization



Pielke's Views

Tax on death?

- What do you think of Pielke's argument?

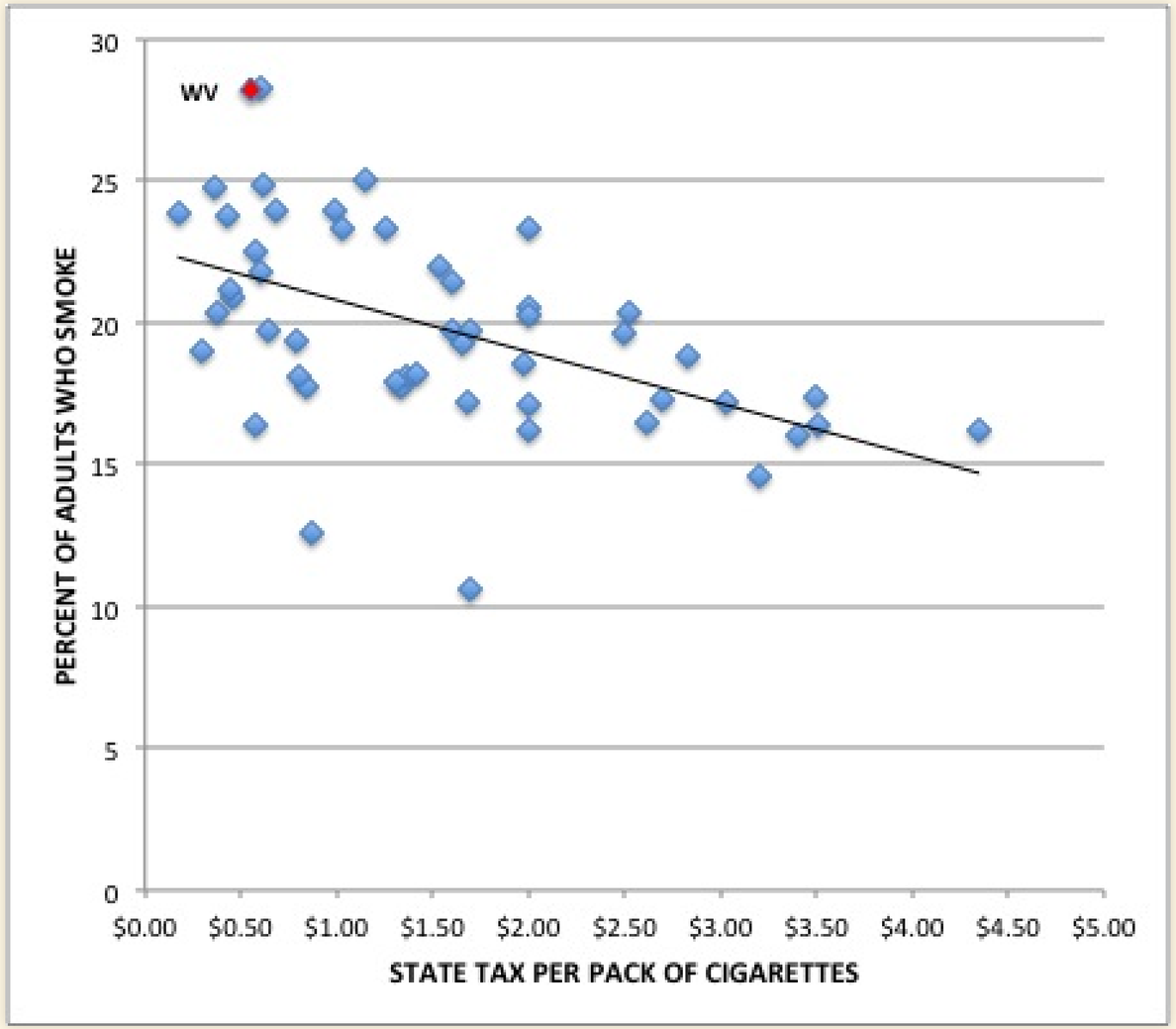
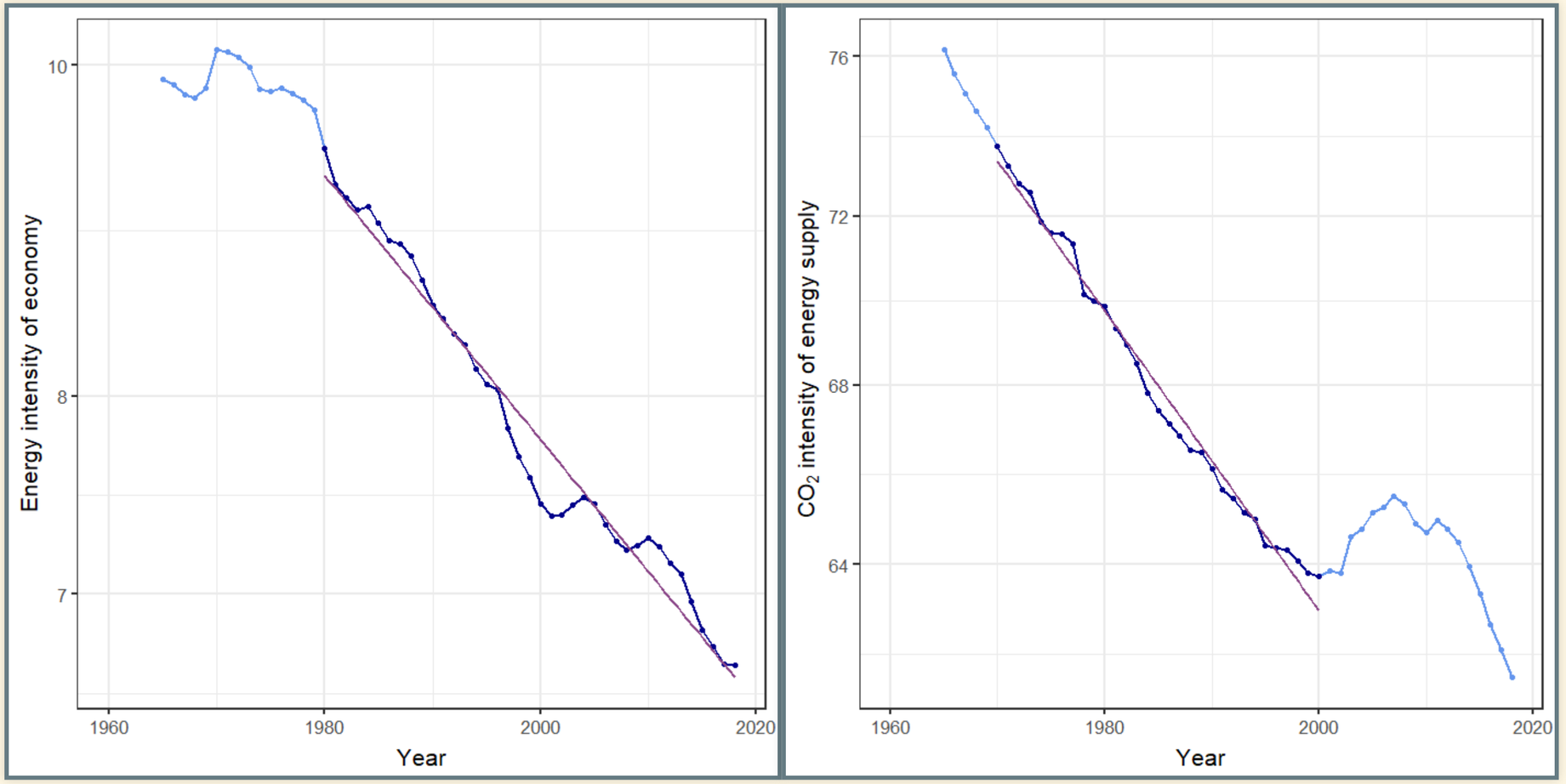


Image credit: Brandon Merritt, West Virginia Center on Budget & Policy

Challenge of decarbonizing



- Trend in *e* (1980–present): 0.9% per year.
- Trend in *f* (1970–2000): 0.5% per year.
  - Trend stopped in 2000, but rapid decrease since around 2008.
- So far: Decarbonization driven much more by efficiency than clean energy.
- Rebound: greater efficiency → more consumption.

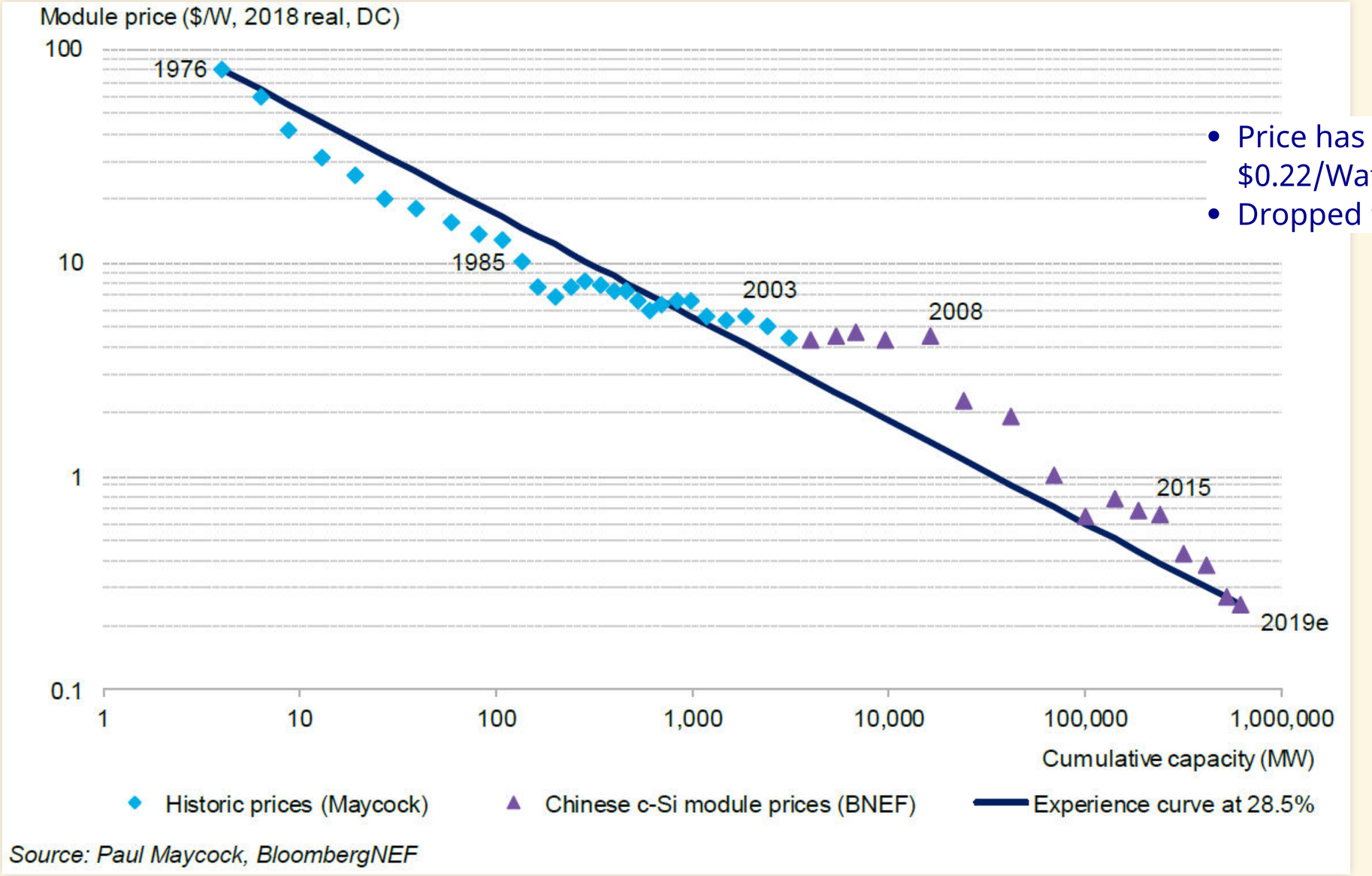
Energy Poverty

Photo credit: Rebecca Blackwell, Associated Press

- 1.1 billion people (17% of planet) lack access to electricity
- Over 3 billion (38%) lack clean cooking facilities
- In many nations in Africa and Asia 80–95% of the population is energy-poor.

Nordhaus’s Perspective

Innovation



- Price has dropped from $80/
  $0.22/Watt in 2019.
- Dropped 99.7% (a factor of 3

Source: Paul Maycock, Bloomberg New Energy Finance

Innovation Policy

- Knowing price of CO_2 will rise provides incentive to invest in R&D
- Valley of Death:
  - Technology looks promising in laboratory
  - Potential for big profits
  - Many years, lots of money to turn laboratory device into product
    - Product development might fail
    - Product might not sell
    - Competitors might copy product
    - Valley of death
  - Government support to cross valley of death

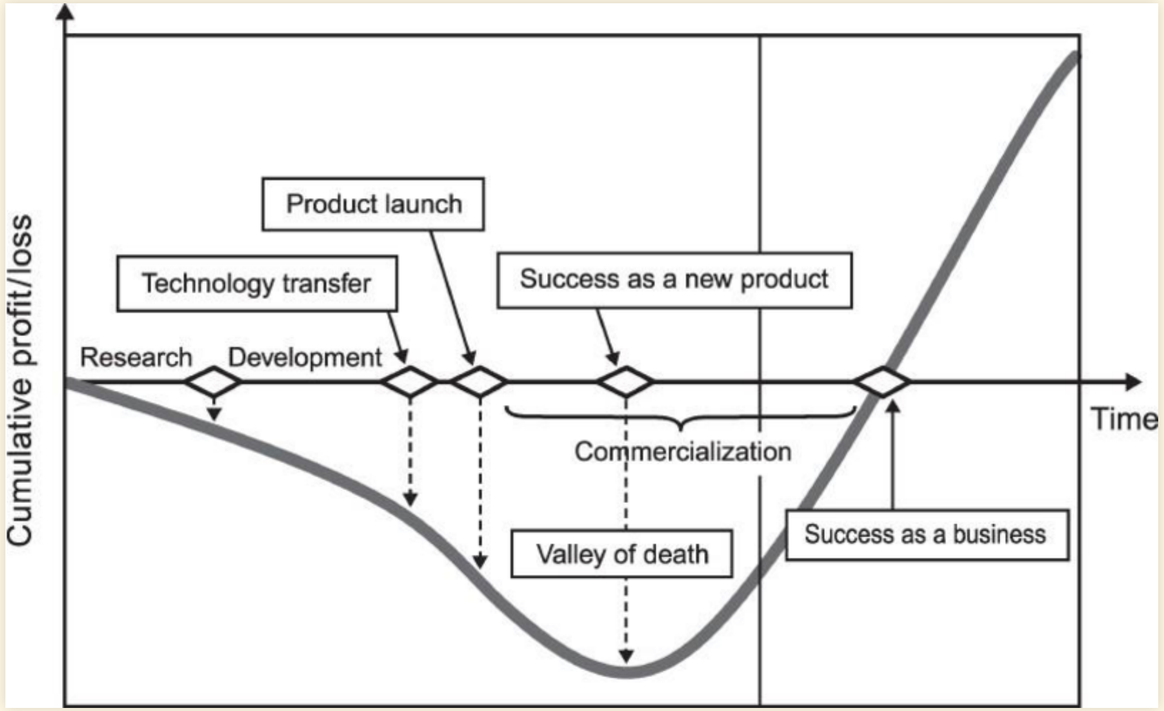


Image: Osawa & Miyazaki, Asian Journal of Technology Innovation **14**, 93 (2006) doi: 10.1080/19761597.2006.9668620

Pielke’s Policy Proposal

Pielke's Policy Proposal:

- Competition within government
- Public-works model
- Demonstration projects
- Government as consumer of energy innovations
- $5/ton carbon tax ($0.04 per gallon gas)
  - invest in clean-energy R&D
- Monitor progress
- Develop "plan B" (geoengineering)

Obliquity

- Appeal to people who don’t care about climate change
  - Cheaper energy
  - Reduce pollution (smog, etc.)
  - Reduce dependence on foreign oil